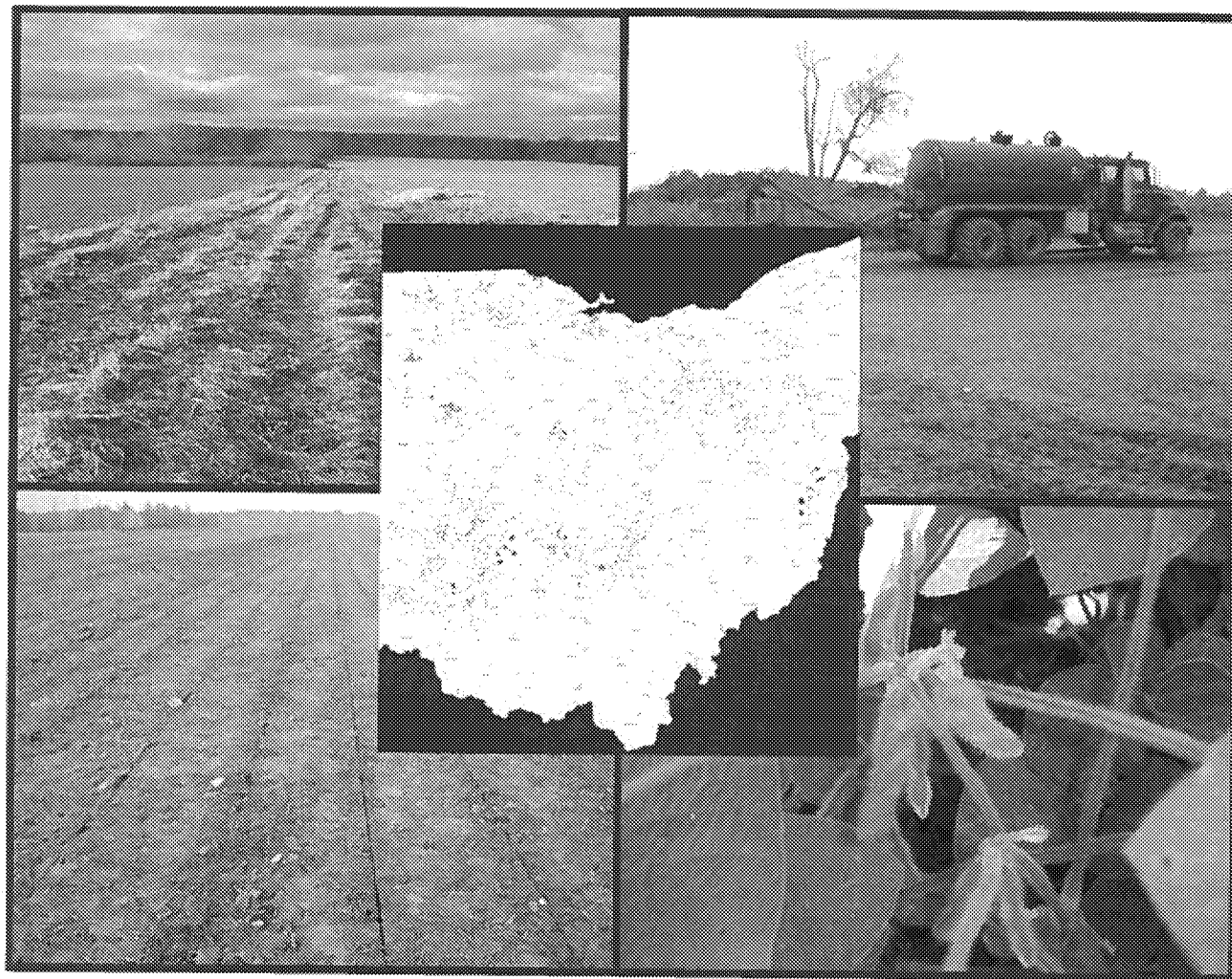


Application for Authorization: Class B Biosolids Beneficial Use Sites




Division of Surface Water
Application for Authorization: Class B Beneficial Use Sites

Biosolids Treatment Works Information

Treatment works name: Emerald BioEnergy		
Ohio NPDES permit #: 4IN00204*AD	County: Morrow	
Mailing address: 461 State Route 61		
City: Marengo	State: OH	Zip: 43334
Operator of record: Taylor Faecher		
Telephone number: (419) 253-5300		
Email address: tfaecher@renergy.com		

Certification Statement

1. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.
2. I have read and understand Chapter 3745-40 of the Ohio Administrative Code (OAC) and I agree to beneficially use biosolids in accordance with all applicable beneficial use requirements and restrictions established in Chapter 3745-40 of the Ohio Administrative Code.
3. I agree to only beneficially use biosolids that have satisfied a pathogen reduction alternative and a vector attraction reduction option and have metals concentration below the pollutant ceiling concentrations as established in Chapter 3745-40 of the Ohio Administrative Code.
4. I agree to maintain all applicable records established in Chapter 3745-40 of the Ohio Administrative Code.



Signature

2 / 12 / 18

Date

This form shall be signed by the operator of record for the treatment works, be an original signature, not a copy, and must be less than one year old at the time the application for transfer is submitted to Ohio EPA for review.

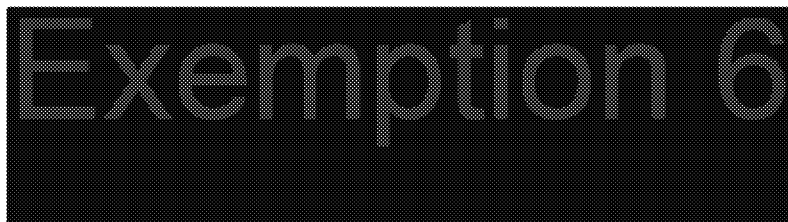
Division of Surface Water
Application for Authorization: Class B Beneficial Use Sites

Owner Consent for Beneficial Use



Certification Statement

1. I agree to allow biosolids generated by the treatment plant identified on Form BUA-1 to be beneficially used on my property at agronomic rates.
2. I agree to allow federal, state and local regulatory staff access to the beneficial use site for the purposes of inspecting and authorizing the beneficial use site, beneficially using biosolids, and collecting and analyzing samples from the beneficial use site. I reserve the right to ask the above parties for proper identification at any time.
3. I certify that I am holder of legal title to the property described on application form BUA-5, or am authorized by the holder to give consent for the land application of biosolids, and that there are no restrictions to the granting of consent under this form.



4 / 25 / -18
Date

Original signatures, not copies, must be less than one year old at the time the application for transfer is submitted to Ohio EPA for review.

¹ For purposes of this form, "beneficial use site owner" means the person who owns the legal rights to the proposed beneficial use site.

² In the event the owner of the beneficial use site changes, Form BUA-2 must be revised and resubmitted to Ohio EPA.

Exemption 6

Division of Surface Water
Application for Authorization: Class B Beneficial Use Sites

Beneficial Use Site Operator Consent for Beneficial Use

Exemption 6

Certification Statement

I agree to be responsible for complying with all applicable beneficial use requirements established in Chapter 3745-40 of the Ohio Administrative Code.

Exemption 6

5/1/18
Date

Original signatures, not copies, must be less than one year old at the time the application for transfer is submitted to Ohio EPA for review.

¹ For purposes of this form, "beneficial use site operator" means the person who plants, grows, harvests or otherwise manages feed crops, fiber crops, food crops or pasture land on the proposed beneficial use site.

² In the event the operator of the beneficial use site changes, Form BUA-3 must be revised and resubmitted to Ohio EPA.


Division of Surface Water
Application for Authorization: Class B Beneficial Use Sites

Beneficial User Information

Beneficial user ¹ : Emerald BioEnergy		
Contact person: Taylor Faecher		
Mailing address: 461 State Route 61		
City: Marengo	State: OH	Zip: 43334
Telephone number: (419) 253-5300		
Email address: tfaecher@reenergy.com		

Certification Statement

I agree to be responsible for complying with all applicable beneficial use requirements established in Chapter 3745-40 of the Ohio Administrative Code.



Signature²

2 / 12 / 18

Date

Original signatures, not copies, must be less than one year old at the time the application for transfer is submitted to Ohio EPA for review.

¹ For purposes of this form, the beneficial user means the person who sprays or spreads Class B biosolids onto the surface of the beneficial use site, injects below the surface of the beneficial use site, or incorporates into the soil of the beneficial use site, for the purpose of providing an agronomic benefit.

² In the event the beneficial user of the beneficial use site changes, Form BUA-4 must be revised and resubmitted to Ohio EPA.

Division of Surface Water
Application for Authorization: Class B Beneficial Use Sites

Beneficial Use Site Information

Ohio EPA Site I.D. (Ohio EPA Use Only)

Field site I.D.: DES-01-02																															
Beneficial use site location: East of Piper Rd Between 229 and 224																															
County: Delaware		Township: Oxford																													
Latitude: 40.40022		Longitude: -82.93175																													
Total acreage proposed for beneficial use: 120																															
Type of beneficial use to be performed: Surface application <input checked="" type="checkbox"/> Injection or immediate incorporation <input checked="" type="checkbox"/>		Ground slope percent: <table border="1"><tr><td>Less than 15%</td><td><input checked="" type="checkbox"/></td><td>15% to 19.9%</td><td><input type="checkbox"/></td></tr><tr><td>Greater than 20%</td><td><input type="checkbox"/></td><td colspan="2"> </td></tr></table>		Less than 15%	<input checked="" type="checkbox"/>	15% to 19.9%	<input type="checkbox"/>	Greater than 20%	<input type="checkbox"/>																						
Less than 15%	<input checked="" type="checkbox"/>	15% to 19.9%	<input type="checkbox"/>																												
Greater than 20%	<input type="checkbox"/>																														
Soil pH (s.u): 6.92		Soil phosphorus (mg/kg): 18																													
Bedrock depth (feet): 3.24		Bray Kurtz P1 <input type="checkbox"/> Mehlich 3 <input checked="" type="checkbox"/>																													
Type of crops to be grown: <table border="1"><thead><tr><th>Crop Type</th><th>Expected Yield</th></tr></thead><tbody><tr><td>Corn</td><td>1 8 0</td></tr><tr><td>Soybeans</td><td>5 5</td></tr><tr><td>Wheat</td><td> </td></tr><tr><td>Pasture</td><td> </td></tr><tr><td>Hay</td><td> </td></tr><tr><td>Other:</td><td> </td></tr></tbody></table>				Crop Type	Expected Yield	Corn	1 8 0	Soybeans	5 5	Wheat		Pasture		Hay		Other:															
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Soil Types: <table border="1"><thead><tr><th>Soil Unit Symbol</th><th>Soil Unit Name</th><th>Hydrologic Soil Group</th><th>Flooding Frequency Class</th></tr></thead><tbody><tr><td>Blg1A1</td><td>Blount silt loam, ground moraine, 0 to 2 percent slopes</td><td>D</td><td>N o n e</td></tr><tr><td>Blg1B1</td><td>Blount silt loam, ground moraine, 2 to 4 percent slopes</td><td>D</td><td>N o n e</td></tr><tr><td>Gwg1B1</td><td>Glynwood silt loam, ground moraine, 2 to 6 percent slopes</td><td>D</td><td>N o n e</td></tr><tr><td>P w A</td><td>Pewamo silty clay loam, 0 to 1 percent slopes</td><td>C / D</td><td>N o n e</td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></tbody></table>				Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group	Flooding Frequency Class	Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	D	N o n e	Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	D	N o n e	Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	D	N o n e	P w A	Pewamo silty clay loam, 0 to 1 percent slopes	C / D	N o n e								
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Division of Surface Water
Application for Authorization: Class B Beneficial Use Sites

Applicable isolation distances:

Type of Isolation Distance			
Surface waters of the state	<input checked="" type="checkbox"/>	Sinkhole/UIC class V drainage	<input type="checkbox"/>
Occupied building	<input checked="" type="checkbox"/>	Private potable water source	<input type="checkbox"/>
Medical care facility	<input type="checkbox"/>		

Are any endangered species or endangered species habitats located on the beneficial use site?

☐ Yes ☒ No

If "Yes" is marked, list the types of endangered species or endangered species habitat:

--	--

Have biosolids been beneficially used on the site since July 20, 1993?

☐ Yes ☒ No

If "Yes" is marked, list the biosolids generators and years beneficial use occurred:

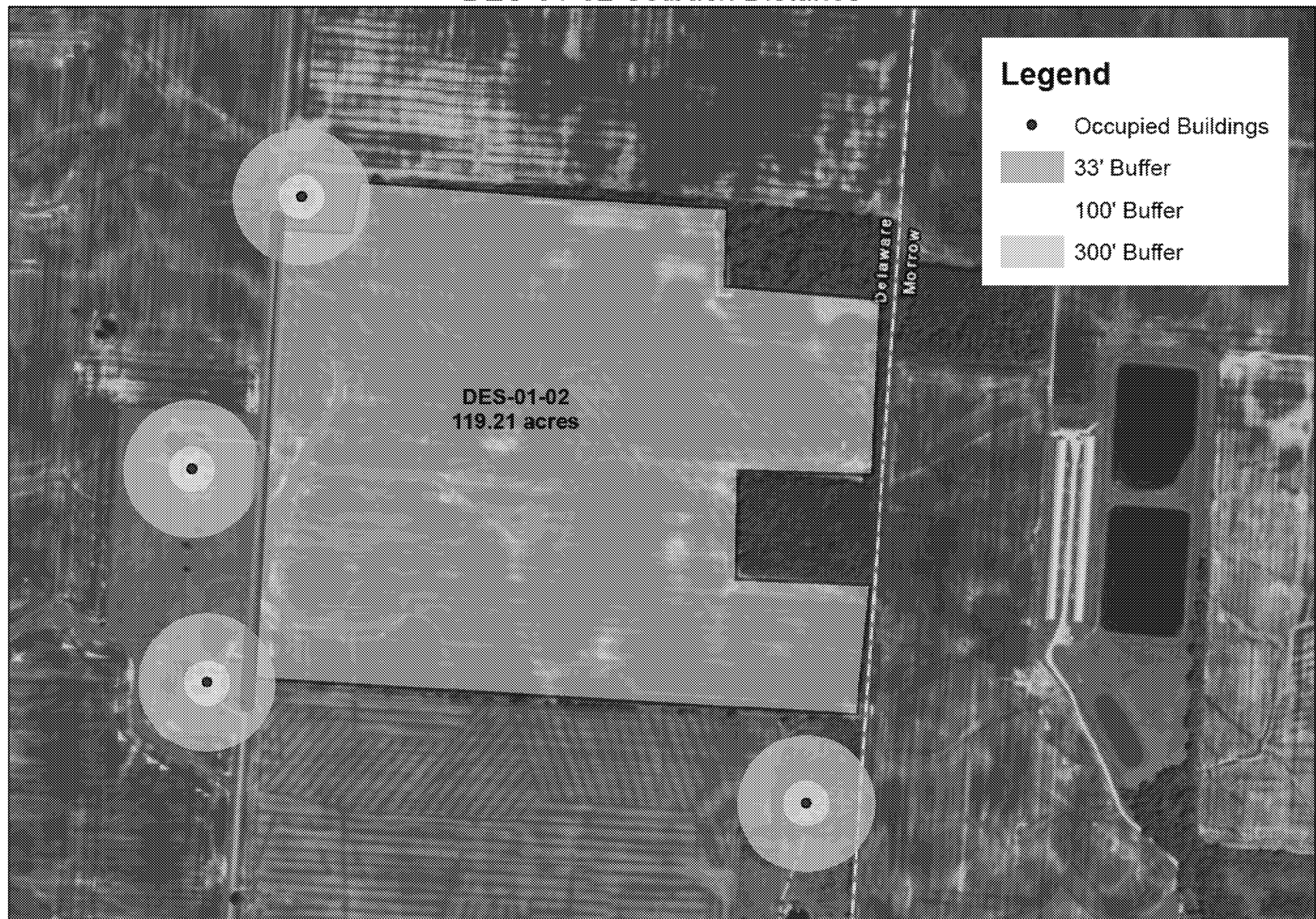
Generator	NPDES permit No.	Year of Beneficial Use

The application must also include all of the following:

- ☐ A soil map of the proposed beneficial use site;
- ☐ A frequency flood class map of the proposed beneficial use site;
- ☐ An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code;
- ☐ A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled; and
- ☐ A copy of the most recent soil test results identified in this form.

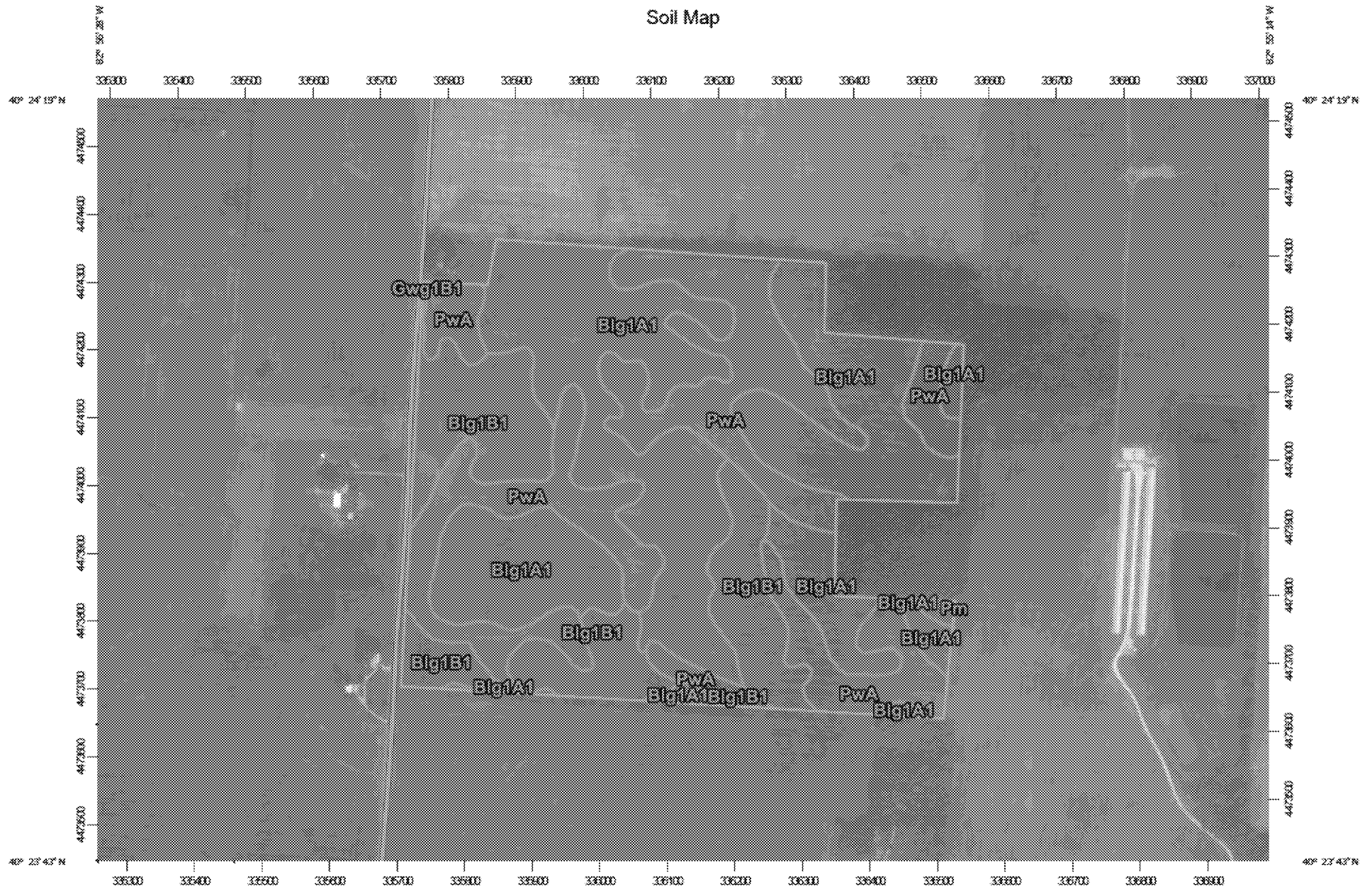


DES-01-02 Setback Distance



Setback Distance		
DES-01-02		
Total Area: 119.21 acres		
Setbacks:		
	Residence - 300' Buffer	1.52 acres
	Residence - 100' Buffer	0 acres
	Surface Waters - 33' Buffer	0.71 acres
	Total Setback Area:	2.23 acres

Soil Map



Map Scale: 1:7,920 if printed on A landscape (11" x 8.5") sheet.

0 100 200 400 600 Meters

0 300 700 1400 2100 Feet

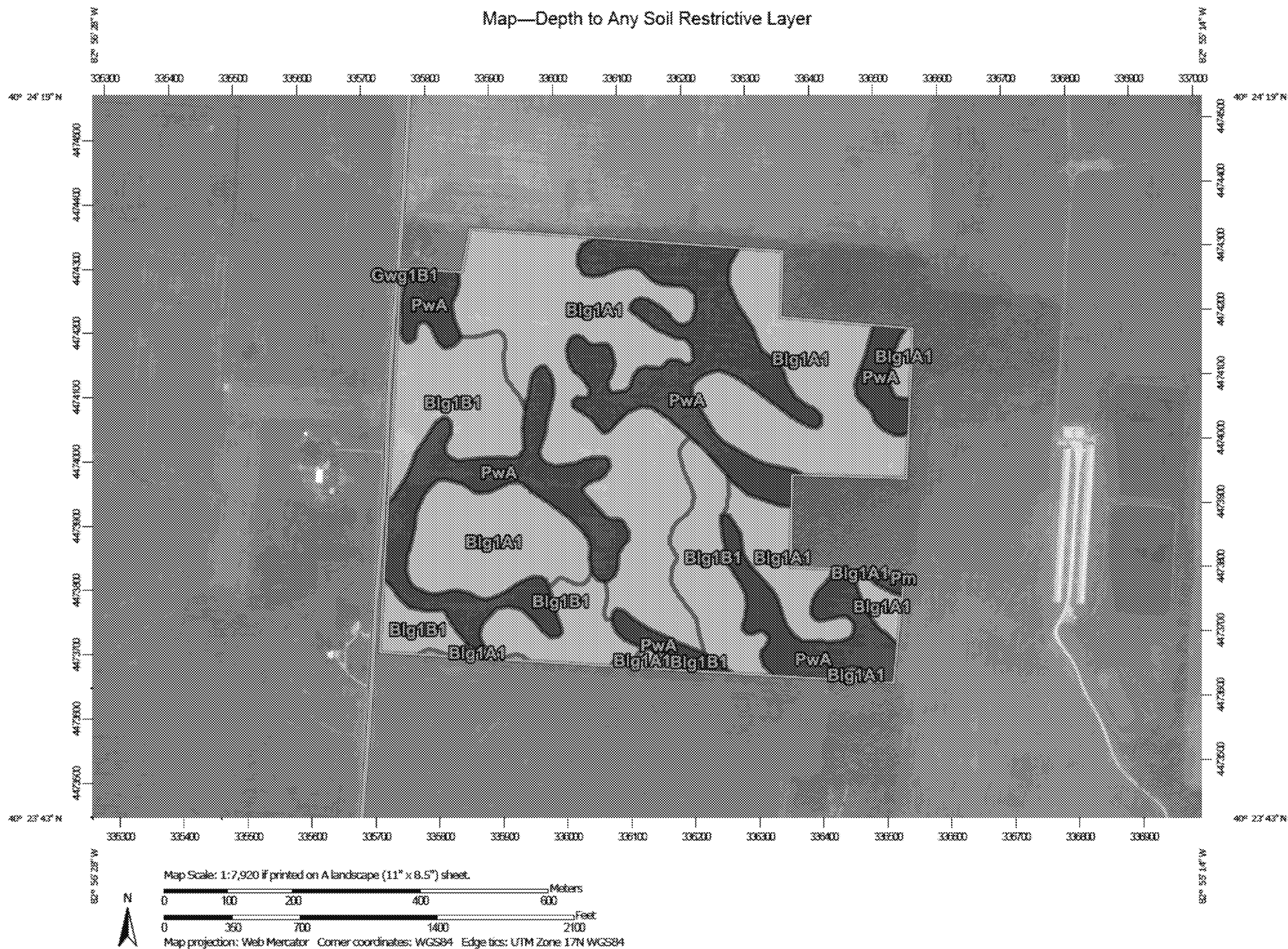
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	57.7	48.4%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	22.9	19.2%
Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	0.1	0.0%
PwA	Pewamo silty clay loam, 0 to 1 percent slopes	38.7	32.4%
Subtotals for Soil Survey Area		119.2	100.0%
Totals for Area of Interest		119.2	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Pm	Pewamo silty clay loam, 0 to 1 percent slopes	0.0	0.0%
Subtotals for Soil Survey Area		0.0	0.0%
Totals for Area of Interest		119.2	100.0%

Map—Depth to Any Soil Restrictive Layer

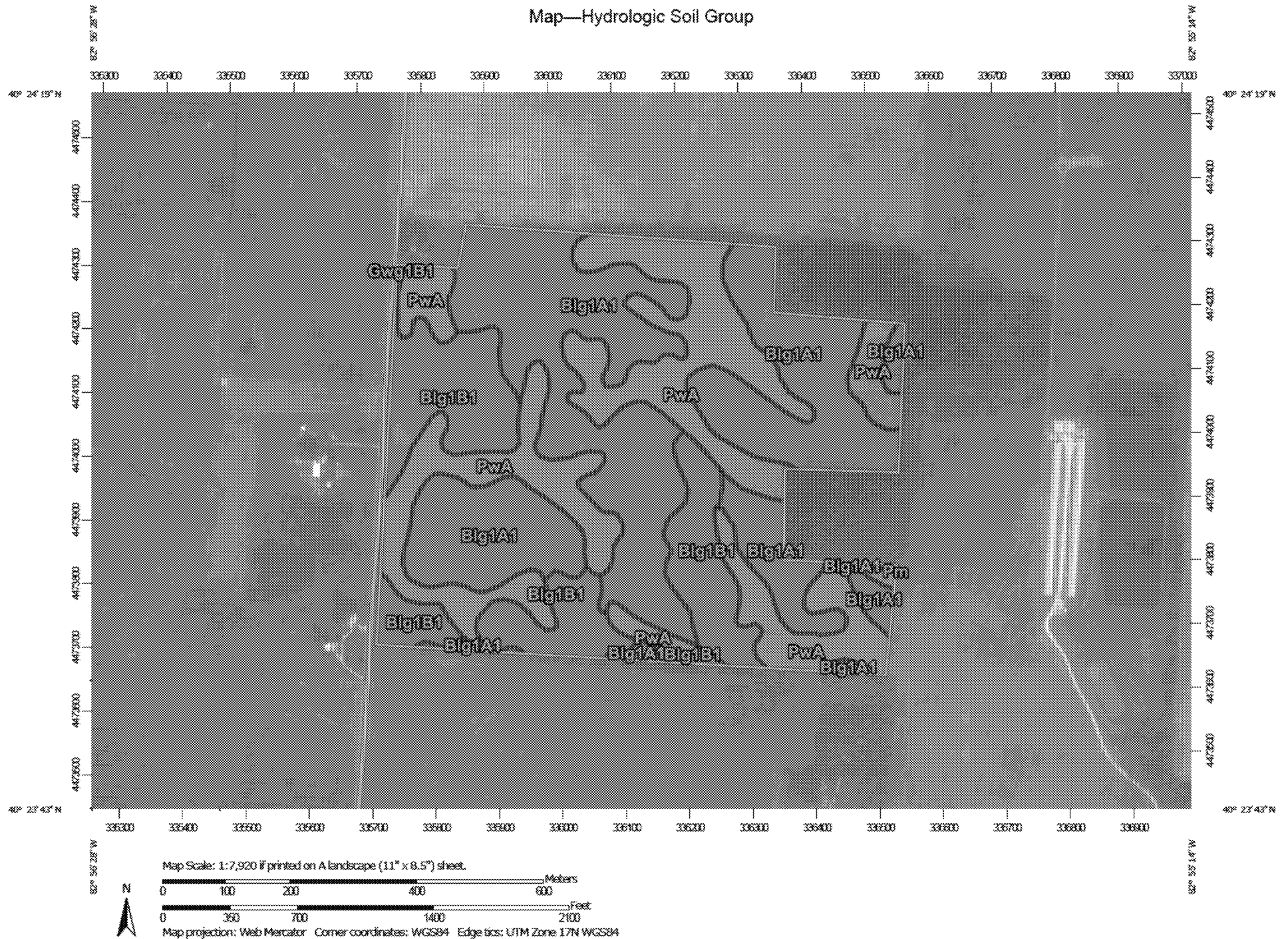


Table—Depth to Any Soil Restrictive Layer

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	99	57.7	48.4%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	94	22.9	19.2%
Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	86	0.1	0.0%
PwA	Pewamo silty clay loam, 0 to 1 percent slopes	>200	38.7	32.4%
Subtotals for Soil Survey Area			119.2	100.0%
Totals for Area of Interest			119.2	100.0%

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
Pm	Pewamo silty clay loam, 0 to 1 percent slopes	>200	0.0	0.0%
Subtotals for Soil Survey Area			0.0	0.0%
Totals for Area of Interest			119.2	100.0%

Map—Hydrologic Soil Group

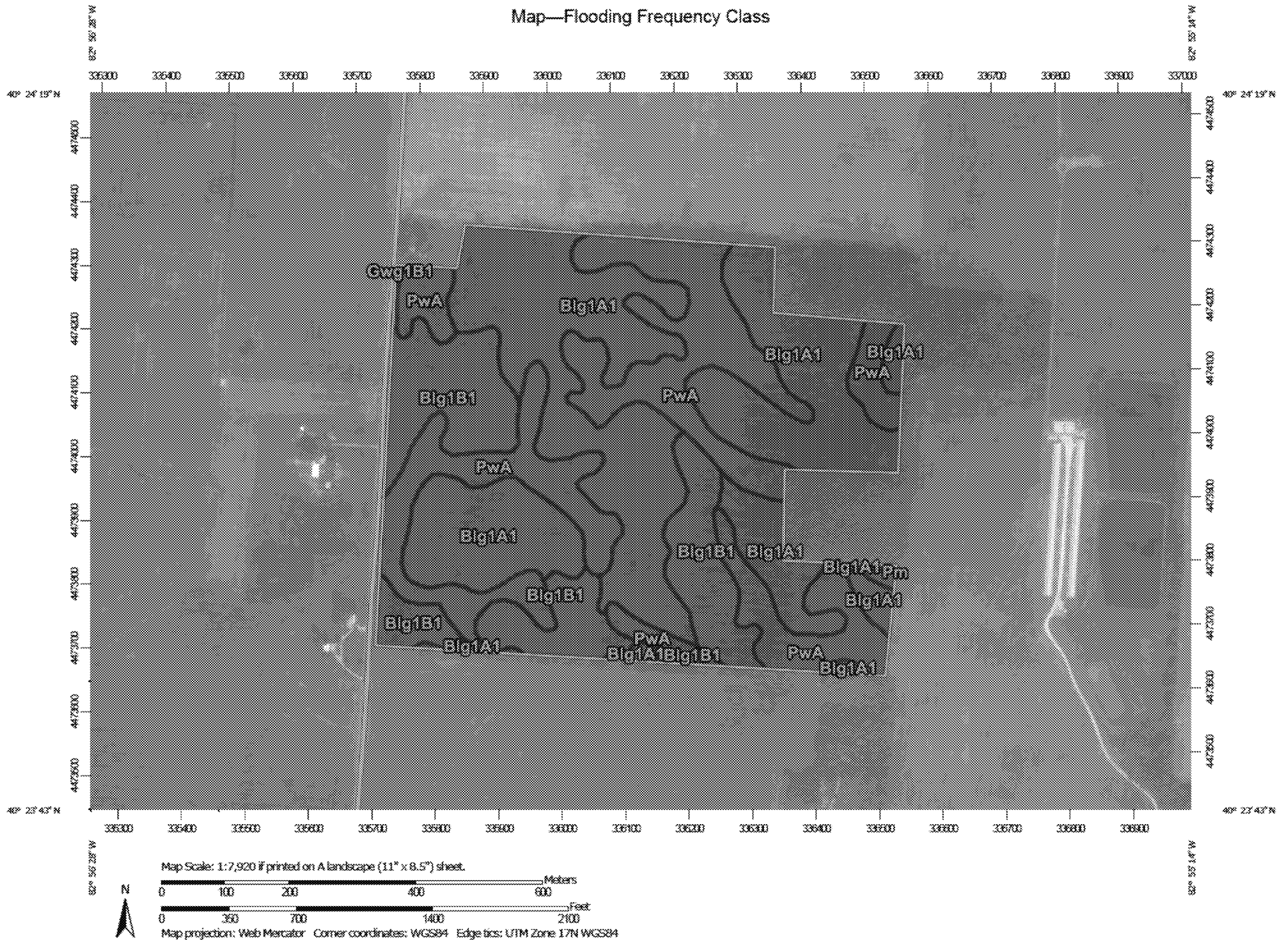


Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	D	57.7	48.4%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	D	22.9	19.2%
Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	D	0.1	0.0%
PwA	Pewamo silty clay loam, 0 to 1 percent slopes	C/D	38.7	32.4%
Subtotals for Soil Survey Area			119.2	100.0%
Totals for Area of Interest			119.2	100.0%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Pm	Pewamo silty clay loam, 0 to 1 percent slopes	C/D	0.0	0.0%
Subtotals for Soil Survey Area			0.0	0.0%
Totals for Area of Interest			119.2	100.0%

Map—Flooding Frequency Class



Table—Flooding Frequency Class

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	None	57.7	48.4%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	None	22.9	19.2%
Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	None	0.1	0.0%
PwA	Pewamo silty clay loam, 0 to 1 percent slopes	None	38.7	32.4%
Subtotals for Soil Survey Area			119.2	100.0%
Totals for Area of Interest			119.2	100.0%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Pm	Pewamo silty clay loam, 0 to 1 percent slopes	None	0.0	0.0%
Subtotals for Soil Survey Area			0.0	0.0%
Totals for Area of Interest			119.2	100.0%

lb/A

BROOKSIDE LABORATORIES, INC. 58251-21**SOIL AUDIT AND INVENTORY REPORT**Name Ringler Energy City Cardington State OHIndependent Consultant Brookside Consultants of Ohio, Inc. Date 03/05/2018

Sample Location			1	2	3	4	5
Sample Identification							
Lab Number			0215-1	0216-1	0217-1	0218-1	0219-1
Total Exchange Capacity (ME/100 g)			13.20	11.98	12.95	12.27	9.74
pH (H ₂ O 1:1)			7.9	6.6	7.1	5.7	7.3
Organic Matter (360°C LOI) %			2.71	3.02	3.70	2.68	2.59
Estimated Nitrogen Release lb/A			74	80	87	74	72
ANIONS	SOLUBLE SULFUR* ppm		5	6	5	7	6
	PHOSPHORUS	MEHLICH III lb/A P as P ₂ O ₅	137	73	69	55	87
		ppm of P	30	16	15	12	19
		BRAY II lb/A P as P ₂ O ₅					
		ppm of P					
EXCHANGEABLE CATIONS	CALCIUM*	lb/A	3692	3094	3730	2616	2678
		ppm	1846	1547	1865	1308	1339
	MAGNESIUM*	lb/A	756	624	634	410	512
		ppm	378	312	317	205	256
	POTASSIUM*	lb/A	218	196	268	188	330
		ppm	109	98	134	94	165
	SODIUM*	lb/A	38	44	38	46	40
		ppm	19	22	19	23	20
BASE SATURATION PERCENT							
Calcium %			69.92	64.57	72.01	53.30	68.74
Magnesium %			23.86	21.70	20.40	13.92	21.90
Potassium %			2.12	2.10	2.65	1.96	4.34
Sodium %			0.63	0.80	0.64	0.81	0.89
Other Bases %			3.50	4.80	4.30	6.00	4.10
Hydrogen %			0.00	6.00	0.00	24.00	0.00
EXTRACTABLE MINORS							
Boron* (ppm)			0.60	0.39	0.52	0.31	0.31
Iron* (ppm)			148	131	187	154	123
Manganese* (ppm)			54	33	32	31	54
Copper* (ppm)			2.29	1.47	2.32	1.48	1.30
Zinc* (ppm)			1.66	0.82	1.41	0.89	1.32
Aluminum* (ppm)			626	660	705	720	638
OTHER TESTS	Soluble Salts (mmhos/cm)						
	Chlorides (ppm)						
	Bray I P (ppm)		19	10	9	8	14

a - alkaline soil

* Mehlich III Extractable

lb/A

BROOKSIDE LABORATORIES, INC. 58251-21

SOIL AUDIT AND INVENTORY REPORT

Name Ringler Energy City Cardington State OHIndependent Consultant Brookside Consultants of Ohio, Inc. Date 03/05/2018

Sample Location		120	6					
Sample Identification								
Lab Number			0220-1					
Total Exchange Capacity (ME/100 g)			18.65					
pH (H ₂ O 1:1)			6.9					
Organic Matter (360°C LOI) %			4.29					
Estimated Nitrogen Release lb/A			93					
ANIONS	SOLUBLE SULFUR*	ppm	5					
	PHOSPHORUS	MEHLICH III lb/A P as P ₂ O ₅	73					
			ppm of P	16				
		BRAY II lb/A P as P ₂ O ₅						
		ppm of P						
	OLSEN lb/A P as P ₂ O ₅							
		ppm of P						
EXCHANGEABLE CATIONS	CALCIUM*	lb/A	5460					
		ppm	2730					
	MAGNESIUM*	lb/A	808					
		ppm	404					
	POTASSIUM*	lb/A	332					
		ppm	166					
	SODIUM*	lb/A	40					
		ppm	20					
BASE SATURATION PERCENT								
	Calcium	%	73.19					
	Magnesium	%	18.05					
	Potassium	%	2.28					
	Sodium	%	0.47					
	Other Bases	%	4.50					
	Hydrogen	%	1.50					
EXTRACTABLE MINORS								
	Boron* (ppm)		0.74					
	Iron* (ppm)		187					
	Manganese* (ppm)		46					
	Copper* (ppm)		3.63					
	Zinc* (ppm)		2.17					
	Aluminum* (ppm)		688					
OTHER TESTS	Soluble Salts (mmhos/cm)							
	Chlorides (ppm)							
	Bray I P (ppm)		10					

* Mehlich III Extractable